Customer No.: 31561
Application No.: 10065,566
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AMENDMENTS

In The Claims

Claim 1. (original) A driving circuit for a display device having a plurality of pixels, wherein the driving circuit is used for driving the light-emitting device in each pixel, the driving circuit comprising:

a light-emitting device driving unit coupled to the light-emitting device for providing a driving current to the light-emitting device selectively; and

a discharging unit coupled to the light-emitting device driving unit for discharging the light-emitting device according to the voltage level of a control signal as soon as the light-emitting device driving unit provides a driving current to the light-emitting device.

Claim 2. (original) The driving circuit of claim 1, wherein the driving circuit may further include a light-emitting device selection unit coupled to the light-emitting device driving unit for receiving a scan signal and a data signal, and when the scan signal and the data signal are at logic level '1', the light-emitting device selection unit enables the light-emitting device driving unit to provide a driving current to the light-emitting device.

Claim 3. (original) The driving circuit of claim 2, wherein the control signal uses the scan signal from the next pixel.

Claim 4. (original) The driving circuit of claim 3, wherein the discharging unit discharges the light-emitting device when the scan signal on the next pixel is at a logic level '1' or a high voltage level.

Claim 5. (original) The driving circuit of claim 1, wherein the discharging unit is coupled to a ground potential so that electric charges are discharged from the light-emitting device to the ground.

Claim 6. (original) The driving circuit of claim 1, wherein the discharging unit is coupled to a negative voltage so that electric charges are discharged from the light-emitting device to the negative voltage terminal.

Claim 7. (original) The driving circuit of claim 1, wherein the discharging unit is a transistor and the transistor is switched on to discharge the light-emitting device according to the voltage level of the control signal.

Claim 8. (original) The driving circuit of claim 7, wherein the gate terminal of the transistor is connected to the control signal terminal and the drain terminal of the transistor is connected to a ground potential so that electric charges in the light-emitting device discharge to the ground when the transistor is turned on by the control signal.

Claim 9. (original) The driving circuit of claim 7, wherein the gate terminal of the transistor is connected to the control signal terminal and the drain terminal of the transistor is connected to a negative voltage terminal so that electric charges in the light-emitting device discharge to the negative voltage terminal when the transistor is turned on by the control signal.

Claim 10. (original) The driving circuit of claim 1, wherein the light-emitting device includes an organic light emitting diode (OLED).

Claim 11. (original) The driving circuit of claim 1, wherein the light-emitting device includes a molecular light-emitting diode.

Claim 12. (original) A display device having a plurality of pixels, wherein each pixel has a driving circuit for driving the light-emitting device inside each pixel, the driving circuit comprising:

a light-emitting device driving unit coupled to the light-emitting device for providing a driving current to the light-emitting device selectively; and

a discharging unit coupled to the light-emitting device driving unit for discharging the light-emitting device according to the voltage level of a control signal as soon as the light-emitting device driving unit provides a driving current to the light-emitting device.

Claim 13. (original) The display device of claim 12, wherein the driving circuit may further include a light-emitting device selection unit coupled to the light-emitting device driving unit for receiving a scan signal and a data signal, and when the scan signal and the data signal are at logic level '1', the light-emitting device selection unit enables the light-emitting device driving unit to provide a driving current to the light-emitting device.

Claim 14. (original) The display device of claim 13, wherein the control signal uses the scan signal from the next pixel.

Claim 15. (original) The display device of claim 14, wherein the discharging unit inside the driving circuit discharges the light-emitting device when the scan signal on the next pixel is at a logic level '1' or a high voltage level.

Claim 16. (original) The display device of claim 12, wherein the discharging unit inside the driving circuit is coupled to a ground potential so that electric charges are discharged from the light-emitting device to the ground.

Claim 17. (original) The display device of claim 12, wherein the discharging unit inside the driving circuit is coupled to a negative voltage so that electric charges are discharged from the light-emitting device to the negative voltage terminal.

Claim 18. (original) A method of driving a display device, wherein the display device has a plurality of pixels and the driving method is used for driving the light-emitting device inside each pixel, the driving method comprising the steps of:

providing a driving current to one of the light-emitting devices selectively; and

discharging the light-emitting device according to the voltage level of a control signal while the light-emitting device is driven by a driving current.

Claim 19. (original) The driving method of claim 18, wherein the step of providing a driving current to one of the light-emitting devices selectively includes providing a driving current to the light-emitting device when a scan signal and a data signal sent to the display device are at a logic level '1' or a high voltage level.

Claim 20. (original) The driving method of claim 19, wherein the control signal is provided by the scan signal of the next pixel in the display device.

Claim 21. (new) The driving circuit of claim 1, wherein the discharging unit is coupled to a point for connecting the light-emitting device and the driving circuit.

Claim 22. (new) The driving circuit of claim 12, wherein the discharging unit is coupled to a point for connecting the light-emitting device and the driving circuit.

Claim 23. (new) The driving method of claim 18, wherein the discharging unit is coupled to a point for connecting the light-emitting device and the driving circuit.

In The Specification

[0015] ~~he~~ The driving circuit further includes a light-emitting device selection unit coupled to the light-emitting device driving unit for receiving a scan signal and a data signal. When the scan signal and the data signal are at logic level '1', the light-emitting device selection unit enables the light-emitting device driving unit so that the light-emitting device driving unit provides a driving current to the light-emitting device.

[0022] Fig. 2 is a timing diagram showing voltage/time relationship for the voltages V_{dd}, V_{scan} , and V_{data} ~~and V_{g2}~~ in the conventional driving circuit shown in Fig. 1; and

[0034] The aforementioned discharging unit ~~31~~ 315 discharges the light-emitting device 320 to the ground. In another embodiment, the discharging unit ~~31~~ 315 may connect to a negative voltage terminal to increase discharge efficiency. For example, the drain terminal of the third thin film transistor (TFT3) may be connected to a voltage source Vdrv at a ground potential or a negative voltage. If the drain terminal is connected to a negative voltage, discharging rate from the light-emitting device will increase and working life of the display may increase.